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### **REMARKS**

In the Office Action, the Examiner noted that claims 1-4, and 6-12 are pending in the application and that claims 1-4, and 6-12 stand rejected. By this response all claims continue un-amended.

In view of the following discussion, the Applicant respectfully submits that none of these claims now pending in the application are anticipated under the provisions of 35 U.S.C. § 102. Thus, the Applicants believe that all of these claims are in allowable form.

### **Rejections Under 35 U.S.C. § 102(b)**

The Examiner rejected claims 1-4, and 6-12 under 35 U.S.C. § 102(b) as being anticipated by Park (U.S. Patent 5,524,092, issued June 4, 1996). The rejection is respectfully traversed.

### **Claim 1**

The Applicant wishes to direct the Examiner's attention to the fact that Applicant's claims 1-4 and 6-12 were rejected, in view of Park, in the previous Office Action dated September 13, 2002 (Paper No. 9). The Applicant maintains the patentability of claims 1-4 and 6-12, in view of Park. As such, Applicant has repeated herein many of the arguments presented in the previous Office Action pertaining to Park, to which the Examiner is also respectfully directed. In addition, Applicant has included below new arguments with respect to Park; and additional arguments with respect to Hebrink, and Bandettini.

The Examiner alleges that regarding claim 1, "Park discloses a metal capped mirror, Fig. 2, comprising a layer 12 consisting of tin oxide to which the metal capping layer 11 is directly adhered." The Applicant respectfully disagrees.

The Park reference fails to teach or disclose at least the invention as recited in the Applicant's claim 1 as follows:

"In a metal capped mirror comprising a stack of dielectric layers of

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alternating high and low indices of refraction capped with a layer of metal, the improvement comprising a layer consisting of tin oxide to which the metal capping layer is directly adhered." (emphasis added).

The Park reference fails to disclose or anticipate a layer consisting of tin oxide as claimed in at least the Applicant's claim 1. The use of an indium tin oxide layer in Park does not anticipate or disclose the use of the claimed tin oxide of the Applicant's invention. Indium tin oxide is an indium oxide doped with tin oxide. As such, indium tin oxide is indium oxide with impurities (tin oxide) therein. Tin oxide is not a conductive material, and in the Applicant's claimed mirrors, does not function as a conductor. Due to the non-conductive properties of tin oxide, the substitution of tin oxide with indium tin oxide, in Park, is inoperable. Applicant submits that the Examiner has misinterpreted Park. Specifically, Park should be interpreted to substitute conductive oxides for indium tin oxide.

In Park, and in contrast to Applicant's invention, the layer 12 alleged by the Examiner to be tin oxide (which it is not) is an electrical conductor and is used in Park for such purpose. (See Park, col. 4, lines 23-31 and lines 63-67). Persons of skill in the relevant art would not consider replacing the conductor (indium tin oxide) of layer 12 of Park with the electrically non-conductive tin oxide layer according to the Applicant's claims. Furthermore, the Applicant teaches the advantages of using a tin oxide layer over layers of other materials, as noted on page 5, line 17 to page 6, line 12 of the instant disclosure:

"In one test, layers of tin oxide ( $\text{SnO}$ ) were deposited on a GaAs substrate at approximately  $2 \text{ \AA}/\text{sec}$  using electron beam heating of a source material of stoichiometric tin oxide ( $\text{SnO}_2$ ). Then, various metal capping metals, e.g., gold and copper, were deposited by resistive heating of source materials on respective tin oxide layers. For comparison, the metal capping layers were also deposited on typical dielectric layers used in mirror stacks, e.g., silicon monoxide, silicon dioxide, and titanium dioxide. A standard test for adhesion was performed on the various samples; namely, they were subjected to two minutes in an ultrasonic bath and the degree of delamination of the capping layers was noted. Significantly, less delamination occurred with the metal layers adhered to the tin oxide layers.

While all possible layers useful as capping layers were not tested, based

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upon experience, the technical literature and the limited tests actually made, it is expected that, in general, and particularly with chemically "pure" (stoichiometric) tin oxide ( $\text{SnO}_2$ ) layers prepared using standard commercially available apparatus, improved adhesion over what was heretofore available is obtained using, in accordance with the invention, a tin oxide layer for adhering a metal capping layer to the end of a mirror stack of dielectric layers."

It is evident from the discussion above that Park does not teach or disclose a tin oxide layer as claimed and used by the Applicant. As such, the Applicant submits that claim 1 is novel.

Furthermore, the Applicant's claim 1 is directed to an improvement of a metal capped mirror as recited in the preamble of claim 1. The Park reference does not teach an improvement to a metal capped mirror as recited in the Applicant's claim 1. The Applicant specifically points out that "The use of layers of tin oxide in devices other than mirror stacks is known" for applications other than in the claimed invention (See Specification, page 5, lines 13-14), but the claimed improvement of a metal capped mirror as claimed by the Applicant, "the improvement comprising a layer consisting of tin oxide to which the metal capping layer is directly adhered", is not known and is not taught by Park.

The teachings of Park are directed toward a multilayered ferroelectric-semiconductor memory-device. There is absolutely no teaching or disclosure in Park for an improvement of a metal capped mirror as taught in the Applicant's specification and claimed in at least the Applicant's claim 1.

Therefore, the Applicant submits that claim 1 is not anticipated by the teachings of Park and, as such, fully satisfies the requirements of 35 U.S.C. §102 and is patentable thereunder.

Likewise, independent claims 6 and 8 recite similar relevant features as recited in claim 1. As such, the Applicant submits that independent claims 6 and 8 are also not anticipated by the teachings of Park and also fully satisfies the requirements of 35 U.S.C. §102 and is patentable thereunder.

Furthermore, dependent claims 2-4, 7 and 9 -12 depend either directly or

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indirectly from independent claims 1 and 8 and recite additional features therefor. As such and for at least the reasons set forth herein, the Applicant submits that dependent claims 2-4, 7 and 9 -12 are also not anticipated by the teachings of Park. Therefore the Applicant submits that dependent claims 2-4, 7 and 9 -12 also fully satisfy the requirements of 35 U.S.C. §102 and are patentable thereunder.

The Applicant reserves the right to argue the patentability of the independent claims 6 and 8, and all of the dependent claims separately at a later time in prosecution.

To support the 102(b) rejection of Applicant's claims, the Examiner cites information contained in Hebrink et al. (U.S. Patent No. 6,449,093 B2, issued September 10, 2002) ("Hebrink") and Bandettini et al. (U.S. Patent No. 5,959,762, issued September 28, 1999) ("Bandettini"). "Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim" (Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co., 730 F.2d 1452, 221 USPQ 481, 485 (Fed. Cir. 1983)) (emphasis added).

The Examiner has used Hebrink and Bandettini to imply that tin oxide is interchangeable with indium tin oxide and that it is inherent for a person skilled in the art to make such as substitution. As discussed above, tin oxide has different properties than indium tin oxide. At most, Hebrink and Bandettini disclose arrangements that allow substitution of tin oxide for indium tin oxide when properties not common between the two oxides do not encumber the operation of their respective disclosed inventions. Therefore, it is improper to apply a broad generalization that tin oxide is substitutable for indium tin oxide. Simply put, tin oxide and indium tin oxide are different materials with different characteristics and the assumption of interchangeability cannot be had.

"[T]he mere fact that a prior art structure could be modified to produce the claimed invention would not have made the modification obvious unless the prior art suggested the desirability of the modification." In re Fritch, 23 U.S.P.Q.2d 1780, 1783 (Fed. Cir. 1992); In re Gordon, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984). As such, Applicant submits that the Examiner's citation of Hebrink and Bandettini to support an

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anticipation rejection of claims 1-4 and 6-12 in view of Park is improper.

Conclusion

Thus the Applicant submits that none of the claims, presently in the application, are anticipated under the provisions of 35 U.S.C. §102. Consequently, the Applicant believes that all these claims are presently in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If however, the Examiner believes that there are any unresolved issues requiring adverse final action in any of the claims now pending in the application, it is requested that the Examiner telephone Eamon J. Wall, Esq. at (732) 530-9404 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,



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